Standard Rectifier Module

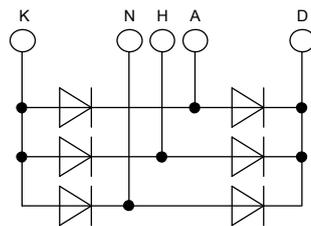| 3~ Rectifier		
V_{RRM} =	1400	V
I_{DAV} =	70	A
I_{FSM} =	300	A

3~ Rectifier Bridge

Part number

VUO68-14NO7
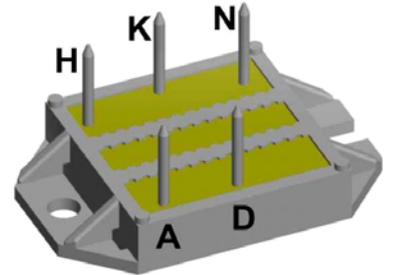
🛡 E72873

Features / Advantages:

- Package with DCB ceramic
- Improved temperature and power cycling
- Planar passivated chips
- Very low forward voltage drop
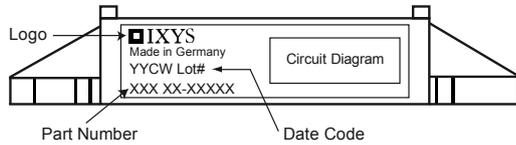- Very low leakage current

Applications:

- Diode for main rectification
- For three phase bridge configurations
- Supplies for DC power equipment
- Input rectifiers for PWM inverter
- Battery DC power supplies
- Field supply for DC motors

Package: ECO-PAC1

- Isolation Voltage: 3000 V~
- Industry standard outline
- RoHS compliant
- Soldering pins for PCB mounting
- Height: 9 mm
- Base plate: DCB ceramic
- Reduced weight
- Advanced power cycling

Rectifier						Ratings		
Symbol	Definition	Conditions			min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage		$T_{VJ} = 25°C$				1500	V
V_{RRM}	max. repetitive reverse blocking voltage		$T_{VJ} = 25°C$				1400	V
I_R	reverse current	$V_R = 1400\ V$	$T_{VJ} = 25°C$				40	µA
		$V_R = 1400\ V$	$T_{VJ} = 150°C$				1.5	mA
V_F	forward voltage drop	$I_F = 20\ A$	$T_{VJ} = 25°C$				1.15	V
		$I_F = 60\ A$					1.50	V
		$I_F = 20\ A$	$T_{VJ} = 125\ °C$				1.12	V
		$I_F = 60\ A$					1.39	V
I_{DAV}	bridge output current	$T_C = 105°C$	$T_{VJ} = 150°C$				70	A
		rectangular d = ⅓						
V_{F0}	threshold voltage } for power loss calculation only		$T_{VJ} = 150°C$				0.82	V
r_F	slope resistance						12.2	mΩ
R_{thJC}	thermal resistance junction to case						1.1	K/W
R_{thCH}	thermal resistance case to heatsink					0.4		K/W
P_{tot}	total power dissipation		$T_C = 25°C$				110	W
I_{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine	$T_{VJ} = 45°C$				300	A
		t = 8,3 ms; (60 Hz), sine	$V_R = 0\ V$				325	A
		t = 10 ms; (50 Hz), sine	$T_{VJ} = 150°C$				255	A
		t = 8,3 ms; (60 Hz), sine	$V_R = 0\ V$				275	A
I^2t	value for fusing	t = 10 ms; (50 Hz), sine	$T_{VJ} = 45°C$				450	A²s
		t = 8,3 ms; (60 Hz), sine	$V_R = 0\ V$				440	A²s
		t = 10 ms; (50 Hz), sine	$T_{VJ} = 150°C$				325	A²s
		t = 8,3 ms; (60 Hz), sine	$V_R = 0\ V$				315	A²s
C_J	junction capacitance	$V_R = 400\ V;\ f = 1\ MHz$	$T_{VJ} = 25°C$			10		pF

Package	ECO-PAC1		Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal			100	A
T_{VJ}	virtual junction temperature		-40		150	°C
T_{op}	operation temperature		-40		125	°C
T_{stg}	storage temperature		-40		125	°C
Weight				19		g
M_D	mounting torque		1.4		2	Nm
$d_{Spp/App}$	creepage distance on surface | striking distance through air	terminal to terminal	6.0			mm
$d_{Spb/Apb}$		terminal to backside	10.0			mm
V_{ISOL}	isolation voltage	t = 1 second	3000			V
		t = 1 minute 50/60 Hz, RMS; $I_{ISOL} \leq 1$ mA	2500			V

Logo

IXYS
Made in Germany
YYCW Lot#
XXX XX-XXXXX

Circuit Diagram

Part Number

Date Code

Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	VUO68-14NO7	VUO68-14NO7	Box	25	491780

Equivalent Circuits for Simulation

on die level $T_{VJ} = 150\,°C$

I — V_0 — R_0 —
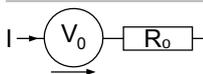
Rectifier

$V_{0\,max}$	threshold voltage	0.82		V
$R_{0\,max}$	slope resistance *	11		mΩ

Outlines   ECO-PAC1
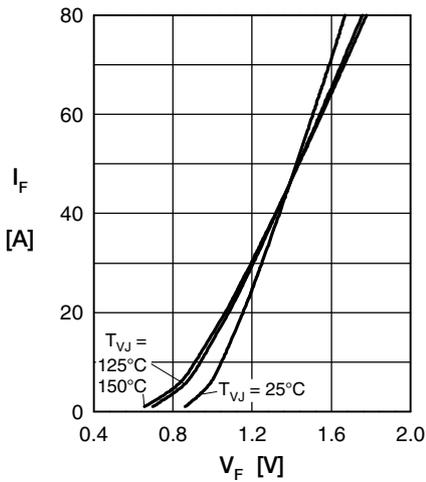
Rectifier

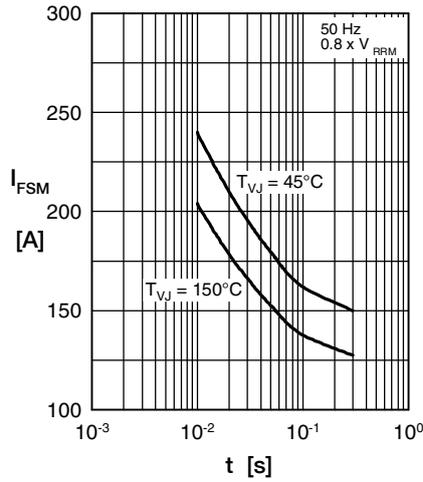Fig. 1 Forward current versus voltage drop per diode

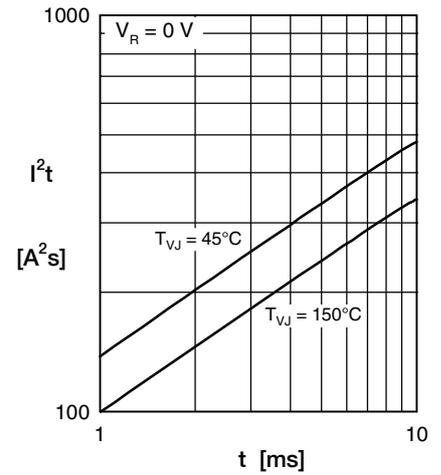Fig. 2 Surge overload current

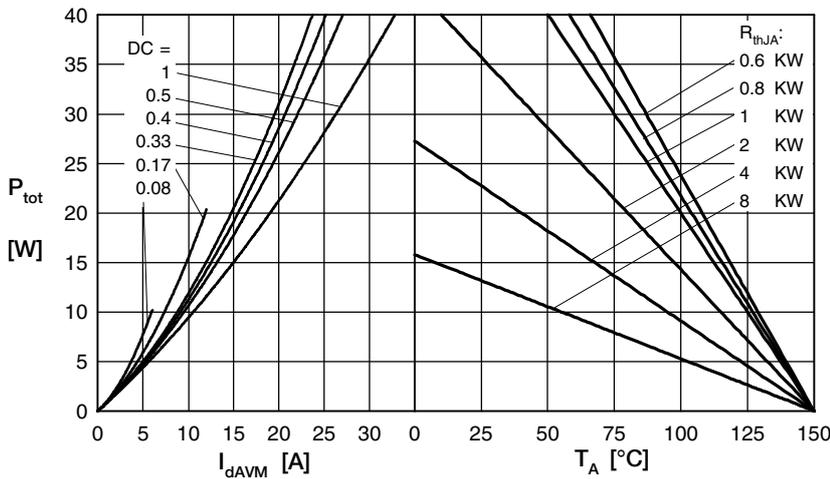Fig. 3 I^2t versus time per diode

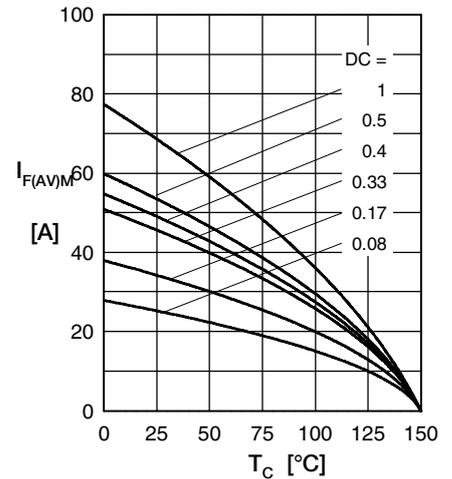Fig. 4 Power dissipation vs. direct output current & ambient temperature

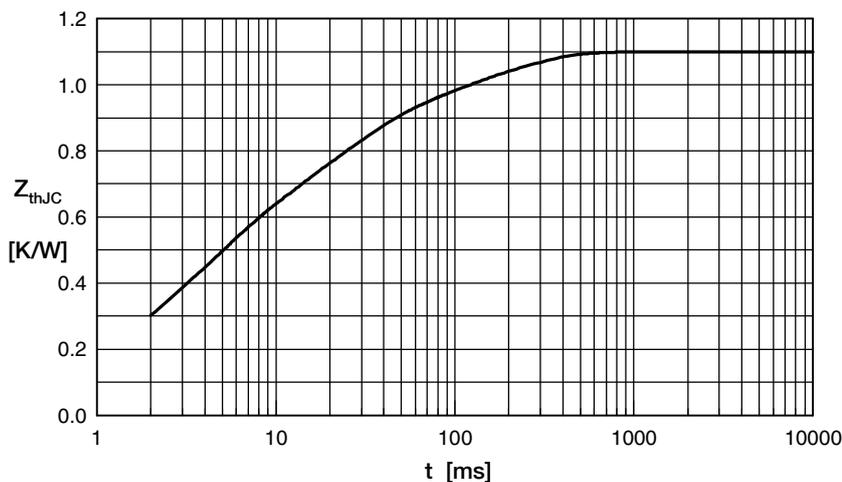Fig. 5 Max. forward current vs. case temperature

Fig. 6 Transient thermal impedance junction to case

Constants for Z_{thJC} calculation:

i	R_{th} (K/W)	t_i (s)
1	0.05070	0.004
2	0.163	0.0025
3	0.2805	0.0035
4	0.363	0.02
5	0.2228	0.15